DSIT Monthly Summary

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Management

ARM Review, Washington Advisory Group

The ARM Program Review held in Washington, D.C. on January 8 and 9 included two presentations from the Data and Science Integration Team. Jimmy Voyles presented a general DSIT overview and Raymond McCord presented an overview of the ARM Archive.

Reprocessing Center

Raymond McCord, ORNL, hosted a design session for the Reprocessing Center. The meeting was held in Oak Ridge on January 15 and 16. This session was attended by 14 members of the ARM DSIT with representatives from DOE-HQ, BNL, ORNL, and PNNL. The functional requirements for the center were defined. These requirements include a brief review of the reprocessing types, preliminary definition of metadata describing tasks and processing operation, and hardware / software features.

Science Working Groups

Two important workshops took place during January 1997. The first was the Single-Column Model (SCM) Workshop held at Lawrence Livermore National Laboratory, January 8-9. The focus of the workshop was (1) progress in SCM and related studies, especially using ARM data, (2) adequacy of current ARM data streams and derived products for SCMs, and (3) recommendations for improvements in derived products and acquisition of new data streams. Over 30 participants attended. A summary of the workshop, including recommendations and action items, is in review and will be circulated to the ARM Management Team and the Science Team Executive Committee before the Annual ARM Science Team Meeting in March. The workshop summary, list of participants, and extended abstracts of presentations will be available on the web after the Science Team meeting.

The second was the Instantaneous Radiative Flux (IRF) Workshop hosted by Bob Ellingson at the University of Maryland, January 22-24. The workshop presentations covered (1) results from the Water Vapor Intensive Observation Period, (2) status of shortwave and longwave radiation instrumentation and modeling, and (3) cloud-radiation interactions. About 50 people attended the workshop. A summary of the workshop is in preparation that will identify accomplishments for the past year, identify research and instrumentation needs, and make recommendations to ARM Management. The summary will be circulated after the Science Team meeting.

Science Related

David Turner presented intercomparison results between the CART Raman Lidar and other instruments measuring water vapor to both the Water Vapor IOP workshop and the IRF workshop. Two highlight points are the demonstrated stability of the Lidar and its daytime capabilities. In preparation of the IRF workshop, moisture profiles from the Raman Lidar were used to drive the LBLRTM. These results, together with results where normal sonde and the microwave radiometer scaled sondes were used to drive the model, were also presented during this workshop. This presentation highlighted the excellent agreement in the MWR scaled soundings (as indicated by the improved AERI/LBLRTM residuals), and the encouraging Raman Lidar results. Finally, reviewed the CART Raman Lidar calibration method and issues involved in such for the IRF working group. This instrument is a key instrument to profiling water vapor, one of the largest sources of error which hinders our ability to improve our models (especially in the longwave), and accurate calibration of it is a high priority.

The IRF working group recommended that a steering committee be created to study and create a fused atmospheric state profile. This profile, which includes the vertical distribution information of water vapor, temperature, aerosols, and clouds, is to be created from the IRF's point of view (i.e., in the column above the central facility). The members of the steering group are Ed Westwater, Hank Revercomb, Rich Ferrare, Barry Lesht, Pat Brown, and Dave Turner.

Comparisons were made between the Raman Lidar and the ARM microwave radiometers, radiosondes, CART 60 meter tower sensors, the mesonet 60 meter tower sensors, and NASA scanning Raman Lidar. (The comparisons to the standard CART instruments were incorporated into a QME which is still under development.) These results demonstrated that the stability of the CART Raman Lidar is very good, and that the initial calibration is very close. These results were presented at the water vapor IOP workshop.

Data System Related

Archive

This fiscal year, a Reprocessing Center will be installed at the ARM Archive to provide a common ARM resource for reprocessing data. A design session for the Reprocessing Center was held in Oak Ridge on January 15 and 16. The functional requirements for the center were defined. These requirements include a brief review of the reprocessing types, preliminary definition of metadata describing tasks and processing operation, and hardware / software features. The options for data flow between the center and the Archive center were also described. A draft requirements and system design document is expected in February. Further definition of the metadata is also expected in February.

Provided a presentation about the Archive for the ARM Program Review held in Washington, D.C. on January 8 and 9.

Developed a draft description and list of issues for the Archive Users Group. The final list of members for Users Group is still under review.

Infrastructure Wide Computing

Portable Services Model (PSM)

The PSM is an abstraction of software that allows the software to run on any given system. This abstraction has been used to provide the ARM infrastructure with mechanism for making services readily available for use. The idea is simply to assign a service (like www) to an Internet address and have a system assume that Internet address. The systems that we are using have the capability of using multiple Internet addresses concurrently and accessing the software from a common location. In order to make the software "portable" to another system, that software must be able to be started

Southern Great Plains

Aerosol Observing Station (AOS)

John Ogren of NOAA/CMDL is the new AOS instrument mentor. Richard Eagan (ANL) met with John to discuss the current state of the data collection system. They agreed to implement hardware and software changes necessary for 'production' by mid-April and to complete the ingest process by early July. This will provide some running history prior to the Aerosol IOP scheduled for the end of the FY.

Enhancement Tracking

The SDS development team has developed and started using a new enhancement tracking system. The new system is web based to allow easier distance collaboration between the developers. All of the PIF's that were changed to Informational Only have been entered into this new system as Enhancement Requests. The tracking system is still being developed and evaluated and the team may move to a different tracking system in the future. The tracking tool (named "ARM Track") is available for public browsing. If interested, contact Trav Stratton for the URL.

MFRSR Info File Checkin (BCR 44)

This is a process which automates the verification and installation of the Info files which are used when processing the MFRSR data. The Instrument Mentor ftp's the Info files to a location on the SDS known as the "Data Doorstep." A Doorstep "Butler" routine retrieves these Info files, installs them on the SDS and notifies the Instrument Mentor, Site Operations and the MDS/SOL.

The process is now in place on the Development System and is currently being used by the Instrument Mentor and Site Operations.

Intermediate Facilities

The stabilization phase is nearing completion. Site Operations has started site vists, allowing the testing of the tape transfer process. The tape reading and data validation has performed well. Some work has been necessary to handle missing moments data and improve data system security.

Performance & Statistics

ARM Archive January 1997 Monthly Report

Data Transmitted Statistics

Transmitted to General Scientific Community -- January 1997 - 17,188 files and 20,042 MB (194 requests)

Transmitted to ARM Infrastructure -- January 1997 - 4,762 files and 3,689 MB (20 requests)

Most Important Accomplishment

A design session for the Reprocessing Center was held in Oak Ridge on January 15 and 16. This session was attended by 14 members of the ARM DSIT with representatives from DOE-HQ, BNL, ORNL, and PNNL. The functional requirements for the center were defined. These requirements include a brief review of the reprocessing types, preliminary definition of metadata describing tasks and processing operation, and hardware / software features. The options for data flow between the center and the Archive center were also described. A draft requirements and system design document is expected in February. Further definition of the metadata is also expected in February.

Other Accomplishments

Provided a presentation about the Archive for the ARM Program Review held in Washington, D.C. on January 8 and 9. This presentation was part of other presentations about the ARM data system and was well received by the review committee.

Developed a draft description and list of issues for the Archive Users Group. The final list of members for Users Group is still under review.

The monthly tabulation of retrieval statistics was revised this month to include the UAV data requests. This increased the retrieval statistics slightly (22 requests, 1453 files, 2,037 MB). Overall requests for this month represented a record number of MB retrieved from the Archive.

Other Statistics

ARM Archive stored volume

As of January 31, 1997
1,528,909 files (860 Gigabytes)

Added during January 1997
70,143 files added (57,685 MB)